WE CLAIM:

1. A process for stripping and sterilizing the internal surface of a wooden container, having a surface layer of a coating of organic and/or mineral material, comprising:

applying a pulsed radiation produced by an intense infrared optical source over the internal surface, each pulse having a duration and an energy density per unit area to be treated such as to cause sublimation of the said surface layer, the surface of the wood thus stripped being sterilized by the heat released by the radiation.

2. The process according to Claim 1, wherein each pulse has a duration of between 10 and 200 ns and an energy of about 2J.

3. Process according to Claim 2, wherein each pulse has a duration of about 100 ns and an energy density between 1 and 8 J/cm^2.

4. The process according to Claim 1, characterized in that it comprises applying, over each unit area, from 2 to 20 pulses, preferably between 2 and 10 pulses, depending on the type container to be treated, the state of the surface to be treated and the thickness of the organic and/or mineral coating.

5. The process according to Claim 1, wherein the radiation is determined so as to cause a quasi-adiabatic sublimation of the layer of organic and/or mineral material on the surface to be treated.

6. The process according to Claim 5, wherein 80% of the heat produced by the radiation is absorbed by the surface layer during the sublimation, the remaining 20% being dissipated within the thickness of the wood.

7. The process according to Claim 1, wherein each pulse causes the sublimation of about 20 μm thickness of material on the surface to be treated.

8. The process according to Claim 1, further comprising evacuating gaseous plasma produced during the sublimation, by sucking up the gaseous plasma or

blowing out the gaseous plasma using an inert gas or air.

9. The process according to Claim 1, wherein the intense optical source comprises a laser source.

10. The process according to Claim 1, further comprising the steps of

starting to strip a portion of the internal surface,

measuring at least one property among a colorimetric property of the portion, an acoustic property of the interaction between the portion and the pulsed radiation and a physical property of smoke generated by the stripping of the portion, and

comparing measurement data corresponding to the said at least one property with predetermined target data representative of a final state of the internal surface to be obtained, and

stopping stripping the portion when the measurement data substantially matches the target data.

11. The process according to Claim 10, wherein the step of measuring a colorimetric property of the internal surface portion comprises illuminating the portion with visible light and measuring a spectral property of the light reflected by the portion to determine a dominant color of the portion.

12. The process according to Claim 10, wherein the step of measuring a physical property of smoke generated by the stripping of the portion comprises measuring a optical extinction coefficient of the smoke for at least one of an infrared wavelength, a visible wavelength and an ultraviolet wavelength.

13. The process according to Claim 10, wherein the step of measuring an acoustic property of the interaction between the portion and the pulsed radiation comprises measuring ultrasounds emitted by a plasma generated by the said interaction.

14. The process according to Claim 1, further comprising, simultaneously with or subsequent to the

step of stripping and sterilizing, applying over the internal surface of the wooden container a second intense optical radiation, the said second radiation being applied continuously or quasi-continuously for a duration and with an energy density per unit area to be treated to cause scorching of the wood on the surface.

15. The process according to Claim 14, wherein the second radiation is applied by a laser source with an out-of-focus beam or by beam scanning.

16. The process according to Claim 14, wherein the second radiation has a power density of between 100 and 200 W/cm^2 for a duration of application of about 0.05 to 0.2 seconds.

17. The process according to Claim 16, wherein the second radiation has an energy density per unit area to be treated of about 20 J/cm^2.

18. The process according to Claim 14, wherein the second radiation is applied by an infrared or ultraviolet lamp.

19. The process according to Claim 14, further comprising the steps of

starting to scorch a portion of the internal surface, measuring at least one property among a colorimetric property of the portion and a physical property of smoke generated by the scorching of the portion, and

comparing measurement data of the said at least one property with predetermined target data representative of a final state of the internal surface to be obtained, and

stopping scorching the portion when the measurement data substantially matches the target data.

20. The process according to Claim 1, wherein each pulse has an energy density of between about 0.5 and 9 J/cm^2, preferably between 1 and 2 J/cm^2.

21. A device for stripping and sterilizing the internal surface of a wooden container having a surface layer of a coating of organic and/or mineral material, comprising:

an intense infrared optical source capable of producing pulsed radiation in order to strip and sterilize the said internal surface;

a waveguide connected to an optical output of the source;

an optical focusing head connected to an output of the waveguide, in order to define a cross section of interaction with the internal surface to be treated and thus an energy density to deposit per unit area;

a robot for the relative movement between the optical head and the internal surface of the container to be treated;

a central control unit to control and synthesize source parameters and movements to be carried out by the robot in order to treat the entire internal surface of the container.

22. The device according to Claim 21, wherein the source parameters comprise at least one of a number of pulses to be applied per unit area, an impulse frequency and a radiation power of the source.

23. The device according to Claim 21, wherein the robot is capable of making the said optical head pivot through an angle of about 120° with respect to the axis of the container, of driving the optical head in relative rotation about the axis of the container with respect to the container, and in driving the container in relative axial translation with respect to the optical head.

24. The device according to Claim 21, further comprising a camera for displaying the surface treatment, the camera being connected to a display screen and to the central control unit in order to control the surface treatment visually and in real time.

25. The device according to Claim 21, wherein the optical head is arranged so as to penetrate inside the container by way of a bunghole of a cask made of wood, a hole specifically made in a heading piece of a cask

made of wood or by one end of a cask of wood from which a heading piece has been removed.

26. The device according to Claim 21, further comprising a colorimetric sensor coupled to the central control unit for measuring a dominant color of the internal surface, the colorimetric sensor being capable of relative orientation with respect to the internal surface.

27. The device according to Claim 21, further comprising a pipe for sucking up smoke generated by the stripping.

28. The device according to Claim 27, further comprising a smoke analyzer coupled to the central control unit for measuring an optical extinction coefficient of the smoke sucked up by the pipe for at least one of an infrared wavelength, a visible wavelength and an ultraviolet wavelength.

29. The device according to Claim 27, wherein the robot is capable of moving the pipe in coordination with the optical head such as to keep an inlet portion of the pipe adjacent to a portion of the internal surface at which the optical head is aimed.

30. The device according to Claim 21, further comprising a microphone coupled to the central control unit for measuring a sound pattern generated by the interaction between the pulsed radiation and the internal surface.

31. The device according to Claim 21, further comprising a second intense optical source for producing a second radiation for scorching the said internal surface.